

CLAIMS

1. A method for determining a printhead misalignment of a printer comprising the steps of:

- a) printing a printhead alignment test pattern including a plurality of spaced-apart images at least partially aligned substantially along a printhead scan axis,
5 wherein each image includes leading and trailing edge portions having respective image-outermost leading and trailing edges spaced apart along the printhead scan axis and includes an intervening portion disposed between the leading and trailing edge portions, and wherein the leading and trailing edge portions are printed at a higher print density than the intervening portion;
- 10 b) moving a sensor along the printhead scan axis over the plurality of images;
c) obtaining data from the sensor;
d) determining the locations along the printhead scan axis of the leading and/or trailing edges of the plurality of images using the data; and
e) calculating the printhead misalignment from the determined locations of
15 the leading and/or trailing edges of the plurality of images.
2. The method of claim 1, wherein the leading and trailing edge portions of one of the images are printed at a substantially uniform and substantially identical print density.
3. The method of claim 2, wherein the intervening portion of the one image is printed at a substantially uniform print density.
4. The method of claim 3, wherein the intervening portion of the one image is printed to extend along the printhead scan axis to the leading and trailing edge portions.
5. The method of claim 1, wherein step a) prints each of the leading and trailing edge portions of one of the images at a print density in the range of substantially 75% to substantially 100% and prints the intervening portion of the one image at a print density in the range of substantially 25% to substantially 50%.
6. The method of claim 5, wherein step a) prints each of the leading and trailing edge portions of the one image at a print density of substantially 100% and prints the intervening portion of the one image at a print density of substantially 50%.
7. The method of claim 1, wherein each image has a width measured along the printhead scan axis, and wherein step a) prints one of the images with the leading and trailing edge portions thereof each extending in the range of substantially 5% to substantially 20 % of the width of the one image measured along the printhead scan
5 axis.

8. The method of claim 7, wherein step a) prints the one image with the leading and trailing edge portions thereof each extending substantially 10% of the width of the one image measured along the printhead scan axis.
9. The method of claim 1, wherein the sensor is disposed to sense a spot size on each of the images, and wherein step a) prints each image with the leading and trailing edge portions thereof each extending in the range of substantially 10% to substantially 50% of the extent of the spot size measured along the printhead scan axis.
10. A method for determining a printhead misalignment of a printer comprising the steps of:
- a) printing a printhead alignment test pattern including a plurality of spaced-apart images at least partially aligned substantially along a printhead scan axis,
5 wherein each image includes leading and trailing edge portions having respective image-outermost leading and trailing edges spaced apart along the printhead scan axis and includes an intervening portion disposed between the leading and trailing edge portions, and wherein the leading and trailing edge portions are printed at a higher print density than the intervening portion;
 - 10 b) moving a sensor along the printhead scan axis over the plurality of images;
 - c) obtaining data from the sensor;
 - d) determining the locations along the printhead scan axis of the leading and/or trailing edges of the plurality of images using the data; and
 - e) calculating the printhead misalignment from the determined locations of
15 the leading and/or trailing edges of the plurality of images,
wherein the leading and trailing edge portions of each image are printed at a substantially uniform and substantially identical print density,
wherein the intervening portion of each of the images is printed at a substantially uniform print density,
20 wherein the intervening portion of each of the images is printed to extend along the printhead scan axis to the leading and trailing edge portions, and
wherein step a) prints each of the leading and trailing edge portions of each of the images at a print density in the range of substantially 75% to substantially 100% and prints the intervening portion of each of the images at a print density in the range
25 of substantially 25% to substantially 50%.
11. A printhead alignment test pattern comprising a plurality of printhead-alignment-test-pattern spaced-apart printed images at least partially aligned substantially along

an axis, wherein each image includes leading and trailing edge portions having
respective image-outermost leading and trailing edges spaced apart along the axis and
5 includes an intervening portion disposed between the leading and trailing edge
portions, and wherein the leading and trailing edge portions have a higher print
density than the intervening portion.

12. The printhead alignment test pattern of claim 11, wherein the leading and trailing
edge portions of one of the images have a substantially uniform and substantially
identical print density.

13. The printhead alignment test pattern of claim 12, wherein the intervening portion
of the one image has a substantially uniform print density.

14. The printhead alignment test pattern of claim 13, wherein the intervening portion
of the one image extends along the axis to the leading and trailing edge portions.

15. The printhead alignment test pattern of claim 11, wherein each of the leading and
trailing edge portions of one of the images has a print density in the range of
substantially 75% to substantially 100% and the intervening portion of the one image
has a print density in the range of substantially 25% to substantially 50%.

16. The printhead alignment test pattern of claim 15, wherein each of the leading and
trailing edge portions of the one image has a print density of substantially 100% and
the intervening portion of the one image has a print density of substantially 50%.

17. The printhead alignment test pattern of claim 11, wherein each image has a width
measured along the axis, and wherein each of the leading and trailing edge portions of
one of the images extends in the range of substantially 5% to substantially 20 % of the
width of the one image measured along the axis.

18. The printhead alignment test pattern of claim 17, wherein each of the leading and
trailing edge portions of the one image extends substantially 10% of the width of the
one image measured along the axis.

19. The printhead alignment test pattern of claim 11, wherein the images are
substantially identical block images.

20. A printhead alignment test pattern comprising a plurality of spaced-apart printed
images at least partially aligned substantially along an axis, wherein each image
includes leading and trailing edge portions having respective image-outermost leading
and trailing edges spaced apart along the axis and includes an intervening portion
5 disposed between the leading and trailing edge portions, and wherein the leading and
trailing edge portions have a higher print density than the intervening portion,

wherein the leading and trailing edge portions of each of the images have a substantially uniform and substantially identical print density,

wherein the intervening portion of each of the images has a substantially
10 uniform print density,

wherein the intervening portion of each of the images extends along the axis to the leading and trailing edge portions,

wherein each of the leading and trailing edge portions of each of the images has a print density in the range of substantially 75% to substantially 100% and the
15 intervening portion of each of the images has a print density in the range of substantially 25% to substantially 50%, and

wherein the images are substantially identical block images.